Amendments to the Claims

Please cancel Claims 27-30 and 40. Please amend Claims 4, 5, 41, 43 and 44. The Claim Listing below will replace all prior versions of the claims in the application:

Claim Listing

1. (Withdrawn) An isolated nucleic acid molecule encoding a protein with a RING-finger domain and 6 NHL-motifs wherein the protein is associated with Lafora's disease.

2. (Withdrawn) A nucleic acid according to Claim 1 having a sequence comprising SEQ ID NO:1 or SEQ ID NO:3.

3. (Withdrawn) An isolated nucleic acid molecule according to Claim 1 comprising

(a) a nucleic acid sequence comprising SEQ ID NO:1 or SEQ ID NO:3, wherein T can also be U;

(b) a nucleic acid sequence complementary to (a);

(c) a nucleic acid sequence that has substantial sequence homology to a nucleic acid sequence of (a) or (b);

(d) a nucleic acid sequence that is an analog of a nucleic acid sequence of (a), (b) or (c); or

(e) a nucleic acid sequence that hybridizes to a nucleic acid sequence of (a), (b), (c) or (d) under stringent hybridization conditions.

4. (Currently amended) A method of detecting Lafora's disease in a mammal comprising detecting a missense, nonsense or frameshift mutation in a nucleic acid sequence in a sample from a mammal, wherein said nucleic acid sequence ~~is an isolated nucleic acid molecule encoding a protein with a RING-finger domain and 6 NHL-motifs, and wherein the protein is associated with Lafora's disease~~ comprises SEQ ID NO: 1, and wherein the mutation results in a deleterious effect on the encoded protein product.

5. (Currently amended) A method according to Claim 4 comprising detecting a C to G change at ~~nucelotide~~ nucleotide number 205 in the EPM2B gene sequence comprising SEQ ID NO:1.

6. (Previously presented) A method according to Claim 4 comprising detecting a T to A change at nucleotide number 76 in the EPM2B gene sequence comprising SEQ ID NO:1.

7. (Previously presented) A method according to Claim 4 comprising detecting a deletion of nucleotides GA at nucleotide positions 1048 and 1049 in the EPM2B gene sequence comprising SEQ ID NO:1.

8. (Previously presented) A method according to Claim 4 comprising detecting a deletion of nucleotides AG at nucleotide positions 468 and 469 in the EPM2B gene sequence comprising SEQ ID NO:1.

9. (Previously presented) A method according to Claim 4 comprising detecting a deletion of nucleotide G at nucleotide number 992 in the EPM2B gene sequence comprising SEQ ID NO:1.

10. (Previously presented) A method according to Claim 4 comprising detecting a deletion of 10 bp at nucleotide positions 373 to 382 in the EPM2B gene sequence comprising SEQ ID NO:1.

11. (Previously presented) A method according to Claim 4 comprising detecting a deletion of 32 bp at nucleotide positions 661 to 692 in the EPM2B gene sequence comprising SEQ ID NO:1.

12. (Previously presented) A method according to Claim 4 comprising detecting a T to C change at nucleotide number 260 in the EPM2B gene sequence comprising SEQ ID NO:1.

13. (Previously presented) A method according to Claim 4 comprising detecting a A to C change at nucleotide number 905 in the EPM2B gene sequence comprising SEQ ID NO:1.

14. (Previously presented) A method according to Claim 4 comprising detecting a T to C change at nucleotide number 98 in the EPM2B gene sequence comprising SEQ ID NO:1.

15. (Previously presented) A method according to Claim 4 comprising detecting an insert of 2 Ts at nucleotide number 892 in the EPM2B gene sequence comprising SEQ ID NO:1.

16. (Previously presented) A method according to Claim 4 comprising detecting a G to A change at nucleotide number 436 in the EPM2B gene sequence comprising SEQ ID NO:1.

17. (Previously presented) A method according to Claim 4 comprising detecting a deletion of nucleotide T at nucleotide number 1100 in the EPM2B gene sequence comprising SEQ ID NO:1.

18. (Previously presented) A method according to Claim 4 comprising detecting a deletion of nucleotide T at nucleotide position 606 in the EPM2B gene sequence comprising SEQ ID NO:1.

19. (Previously presented) A method according to Claim 4 comprising detecting a A to T change at nucleotide number 923 in the EPM2B gene sequence comprising SEQ ID NO:1.

20. (Previously presented) A method according to Claim 4 comprising detecting a G to T change at nucleotide number 580 in the EPM2B gene sequence comprising SEQ ID NO:1.

21. (Previously presented) A method according to Claim 4 comprising detecting a G to T change at nucleotide number 199 in the EPM2B gene sequence comprising SEQ ID NO:1.

22. (Previously presented) A method according to Claim 4 comprising detecting a G to A change at nucleotide number 838 in the EPM2B gene sequence comprising SEQ ID NO:1.

23. (Previously presented) A method according to Claim 4 comprising detecting a C to T change at nucleotide number 676 in the EPM2B gene sequence comprising SEQ ID NO:1.

24. (Previously presented) A method according to Claim 4 comprising detecting a deletion of nucleotide A at nucleotide position 468 in the EPM2B gene sequence comprising SEQ ID NO:1.

25. (Previously presented) A method according to Claim 4 comprising detecting a deletion of nucleotide C at nucleotide position 204 in the EPM2B gene sequence comprising SEQ ID NO:1.

26. (Previously presented) A method according to Claim 4 comprising detecting one or more mutations in the EPM2B gene as indicated in Table 1.

27-30. (Canceled)

31. (Withdrawn) A method according to Claim 4 wherein the mammal is human.

32. (Canceled)

33. (Canceled)

34. (Withdrawn) An isolated protein containing a RING-finger domain and six NHL domains which protein is associated with Lafora's disease.

35. (Withdrawn) A protein according to Claim 34 having the amino acid sequence comprising SEQ ID NO:2 or SEQ ID NO:4.

36. (Withdrawn) A method for detecting Lafora's disease comprising detecting a mutation in a protein according to Claim 34.

37. (Withdrawn) A method according to Claim 36 comprising detecting a mutation in the EPM2B protein as indicated in Table 1.

38. (Withdrawn) A kit for carrying out the method of Claim 4 comprising reagents for the detection of a mutation in a nucleic acid sequence comprising SEQ ID NO:1 or SEQ ID NO:3.

39. (Withdrawn) A kit for carrying out the method of Claim 36 comprising reagents for the detection of a mutation in a protein sequence comprising SEQ ID NO:2 or SEQ ID NO:5.

40. (Canceled)

41. (Currently amended) A method of detecting the presence ~~or absence~~ of Lafora's disease in a ~~mammal~~ human comprising detecting a mutation in the EPM2B gene nucleic acid sequence ~~of Claim 1~~ wherein the nucleic acid sequence comprises:

(a) a nucleic acid sequence comprising SEQ ID NO:1 ~~or SEQ ID NO:3~~, wherein T can also be U;

(b) a nucleic acid sequence complementary to (a);

(c) a nucleic acid sequence that has substantial sequence homology to a nucleic acid sequence of (a) or (b);

(d) a nucleic acid sequence that is an analog of a nucleic acid sequence of (a), (b) or (c); or

(e) a nucleic acid sequence that hybridizes to a nucleic acid sequence of (a), (b), (c) or (d) under stringent hybridization conditions.

42. (Withdrawn) A method for detecting the presence or absence of Lafora's disease comprising detecting a mutation in a protein according to claim 35.

43. (Currently Amended) A method of detecting the presence ~~of absence~~ or absence of a mutation in ~~the nucleic acid~~ a nucleic acid in a test sample containing the EPM2B gene ~~sequence set forth in SEQ ID NO:1 or SEQ ID NO:3~~ comprising the steps of:

(a) analyzing a test sample containing the EPM2B gene to determine the nucleic acid sequence of the gene;

(b) comparing the nucleic acid sequence of the gene in the test sample to the nucleic acid sequence set forth in SEQ ID NO:1 ~~or SEQ ID NO:3~~; and

(c) determining the differences, if any, between the sequence of the EPM2B gene in the test sample and the nucleic acid sequence set forth in SEQ ID NO:1 ~~or SEQ ID NO:3~~, thereby detecting the presence ~~of~~ or absence of a mutation in the EPM2B gene of the test sample. ~~nucleotide sequence set forth in SEQ ID NO:1 or SEQ ID NO:3 in a mammal.~~

44. (Currently Amended) A method for diagnosing the presence of, or predisposition to, Lafora's disease in a human ~~mammal~~ comprising:

~~(a) obtaining a nucleic acid sample from the mammal;~~

~~(b)~~ analyzing a ~~the~~ nucleic acid sample obtained from the human to determine the presence of ~~absence of~~ a EPM2B gene mutation listed in Table 1, ~~associated with Lafora's disease,~~ wherein the presence of an EPM2B gene mutation ~~associated with Lafora's disease~~ indicates that the human has, or ~~mammal~~ is at risk for development of Lafora's disease.

45. (Previously presented) A method according to Claim 4 wherein the mutation is a deletion, insertion, point mutation, or repeat sequence.

46. (Previously presented) A method according to Claim 44 wherein the mutation is a deletion, insertion, point mutation, or repeat sequence.